above ground storage tank
air quality
asbestos/lead-based paint
baseline environmental assessment
brownfield redevelopment
building/infrastructure restoration
caisson/piles
coatings
concrete
construction materials services
corrosion
dewatering
drilling
due care analysis
earth retention system
environmental compliance
environmental site assessment
facility asset management
failure analyses
forensic engineering
foundation engineering
geodynamic/vibration
geophysical survey
geosynthetic
greyfield redevelopment
ground modification
hydrogeologic evaluation
industrial hygiene
indoor air quality/mold
instrumentation
masonry/stone
metals
nondestructive testing
pavement evaluation/design
property condition assessment
regulatory compliance
remediation
risk assessment
roof system management
sealants/waterproofing
settlement analysis
slope stability
storm water management
structural steel/welding
underground storage tank

DUE CARE PLAN

171 WEST MICHIGAN AVENUE
BATTLE CREEK, MICHIGAN

SME Project Number 062202.04.001
May17, 2012

PREPARED FOR:

Mr. Jon Bartlett
Calhoun County Land Bank
315 West Green Street
Marshall, Michigan 49068

Soil and Materials Engineers, Inc.

Soil and Materials Engineers, Inc.
3301 Tech Circle Drive
Kalamazoo, MI 49008-5611

tel (269) 323-3555
fax (269) 323-3553
www.sme-usa.com

May 17, 2012

Mr. Jon Bartlett
Calhoun County Land Bank
315 West Green Street
Marshall, Michigan 49068

RE: Due Care Plan
171 West Michigan Avenue
Battle Creek, Michigan
SME Project 062202.04.001

Dear Mr. Bartlett:

Enclosed is the completed Due Care Plan for the above referenced property. Soil and Materials Engineers, Inc. (SME) prepared this Due Care Plan to assist the Calhoun County Land Bank manage due care obligations for the above referenced property. A copy of this Due Care Plan should be provided to contractors and employees who may encounter subsurface contaminants at the property. This Due Care Plan should be periodically reviewed and updated, as needed.

If you have any questions or comments concerning the attached Due Care Plan, please contact us.

Sincerely,

SOIL AND MATERIALS ENGINEERS, INC.

Davin K. Ojala
Project Consultant

Keith Egan
Senior Consultant

Distribution: Mr. Jon Bartlett, Calhoun County Land Bank (one original)
Ms. Tiffany Eichorst, Calhoun County Road Commission (one PDF file via CD)
Mr. Craig Mankowski, U.S. EPA (one PDF file via CD)

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TABLE OF CONTENTS

Attachments

1.0 INTRODUCTION

This Due Care Plan documents the approaches and procedures to be implemented by the Calhoun County Land Bank (CCLB) for managing environmental due care obligations at the property located at 171 West Michigan Avenue, in the City of Battle Creek, Calhoun County, Michigan (the Property). The location of the Property in relation to nearby roads and major landmarks is depicted on Figure 1. Cumulative results of previous environmental assessments of the Property revealed the presence of environmental contamination at levels requiring the implementation of a Due Care Plan in accordance with Part 20107a of the Michigan Natural Resources and Environmental Protection Act (Part 201). The results of those assessments are documented in the ***Baseline Environmental Site Assessment*** (January 20, 2011) prepared by Soil and Materials Engineers, Inc. (SME). The due care requirements include:

- Preventing exacerbation of the known contamination;
- Mitigating unacceptable exposure to hazardous substances, mitigating fire and explosion hazards due to hazardous substances, and allowing for the intended use of the facility in a manner that protects the public health and safety;
- Taking reasonable precautions against the reasonably foreseeable acts or omissions of a third party;
- Complying with land use restrictions and not impeding the effectiveness or integrity of any institutional control established in connection with response actions (if applicable); and
- Providing full cooperation, assistance, and access to persons authorized to conduct response actions (if applicable).

Attachment A includes the Michigan Department of Environmental Quality's (MDEQ's) Citizen's Guide Due Care Requirements, which provides additional information on the CCLB's due care obligations.

The Property consists of approximately 6.9 acres of land developed with an approximately 44,600 square-foot vacant commercial building and associated paved parking and landscaped areas. Property features are depicted on Figure 2. Soil impacted with ethylbenzene, xylenes, various PAHs (acenaphthene, acenanaphthylene, benzo(b)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene), and various metals (arsenic, cadmium, chromium, copper, lead, mercury, and zinc) is present on the Property at concentrations above Part 201 Generic Residential Cleanup Criteria. Benzene, various PAHs (acenaphthene, acenanaphthylene, benzo(a)pyrene,

benzo(b)fluoranthene, chrysene, fluorene, naphthalene, phenanthrene, and pyrene), and lead at concentrations above Part 201 Generic Residential Cleanup Criteria is present in groundwater on the Property. Although contamination was identified at specific sampling locations, based on the nature of the findings and limitations of the assessment, contamination is presumed to be present at similar concentrations at all locations on the Property for purposes of this Due Care Plan.

2.0 POTENTIAL EXPOSURE PATHWAYS AND APPLICABLE CRITERIA

The Property is zoned for commercial and industrial use and the CCLB intends to hold the Property for unknown future commercial redevelopment. Since the Property is intended for commercial use, the applicable criteria for CCLB's Due Care obligations are Part 201 generic non-residential use criteria. Tables 1 and 2 summarize the soil and groundwater analytical results compared to Part 201 generic non-residential use criteria. Figure 3 is a Soil Boring Location Diagram.

2.1 Soil

The following pathways for human exposure to contaminated soil are relevant for future activities at the Property:

- direct contact,
- inhalation of soil particles, and
- inhalation of vapors from volatile compounds.

Cumulative chemical analytical results of environmental assessments conducted at the site were compared to the applicable Part 201 generic non-residential cleanup criteria. Human health exposure risks associated with the contamination were evaluated by comparing the environmental assessment results to relevant exposure pathways and applicable criteria. Benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and lead were reported at concentrations exceeding the Part 201 non-residential direct contact criteria in soil at depths ranging from 3 feet to 20 feet below ground surface at the Property. The impacted soil was encountered below asphalt concrete pavement in the parking lot located on the west side of the Property, and in grass-covered areas on the central and eastern portions of the Property. Where sample depths were reported, contamination was identified below topsoil at depths greater than or equal to three feet below ground surface throughout the Property. Since the CCLB has no plans to disturb the asphalt concrete pavement or soil cover, no response actions are necessary at this time to mitigate exposure to these chemicals in soil.

2.2 Groundwater

The following pathways for human exposure to contaminated groundwater are relevant for future activities at the Property:

- direct contact;
- inhalation of vapors from volatile compounds; and
- consumption of groundwater (drinking water).

Groundwater is impacted with benzene, acenaphthylene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, pyrene, and lead at levels above Part 201 generic non-residential drinking water criteria; however, potential exposures are not a threat because drinking water is supplied to the Property by a municipal water supply system. Benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and pyrene were reported at concentrations exceeding Part 201 generic non-residential groundwater contact criteria. Since the CCLB has no plans to disturb the groundwater, no response actions are necessary at this time to mitigate exposure to these chemicals in groundwater. The concentration of pyrene detected in the groundwater sample collected at SB5 (Terra, March 1993) exceeds Part 201 generic non-residential groundwater volatilization to indoor air inhalation criteria. Since the location of this groundwater contamination is approximately 150 feet east of the building on the Property and cross-gradient to the groundwater flow direction, no response actions are necessary at this time to mitigate exposure to this chemical in groundwater. However, if the CCLB intends to construct a building in the vicinity of SB5 (Terra, March 1993) in the future, the contamination at this location must be further evaluated prior to development.

3.0 PROTECTION OF HUMAN HEALTH

Exposure to contaminated soil and groundwater is currently mitigated by the presence of site pavements and topsoil cover; however, if pavements or topsoil is removed during redevelopment activities, the following procedures will mitigate potential exposure to contaminated soil and groundwater during redevelopment activities.

- Prior to removal of existing exposure barriers to human contact (site pavements or topsoil), the following will be done:
    - The owner will provide contractors a copy of this due care plan.
    - The owner will notify contractors and workers about the known hazardous substances on the Property and related hazards information as required under the OSHA Hazard Communication Standard (29 CFR 1910.1200).
- When possible, excavation work shall be performed by mechanical equipment.
- To reduce contact with bare skin, workers shall wear protective clothing such as work gloves and long sleeved shirts.
- No eating, drinking, and smoking during subsurface activities shall be allowed.
- Employees shall be instructed to wash hands upon completion of subsurface activities on the Property and before eating or drinking. A hand washing station with soap and water should be provided for employees conducting subsurface work. Waterless hand wash/wipe materials should not be used as a substitute for soap and water.
- Access to the work area by employees, visitors, and the general public shall be restricted through the use of temporary fencing installed along the perimeter of the work area, and signs indicating only authorized persons are permitted in excavation areas.
- Workers shall be told to wash work clothes, and to wash those clothes separately.

4.0 PREVENTION OF EXACERBATION

The organic chemicals benzene, ethylebenzene, xylenes, acenaphthene, acenanaphthylene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, and the metals arsenic, cadmium, chromium, copper, lead, mercury, and zinc are present in soil and/or groundwater on the Property at levels above Part 201 generic residential use and/or groundwater surface water interface criteria. It should be noted that not all of the chemicals exceeded a health-based criteria. Ethylbenzene, xylenes, acenaphthene, fluoranthene, fluorene, phenanthrene, copper, lead, and zinc exceeded only Part 201 generic groundwater surface water interface protection criteria in soil. Acenaphthene, fluoranthene, fluorene, and naphthalene exceeded only Part 201 generic groundwater surface water interface criteria in groundwater. Tables 3 and 4 present the soil and/or groundwater analytical results compared to Part 201 generic residential use and groundwater surface water interface criteria. The presence of these contaminants at levels above Part 201 generic residential use criteria imparts due care obligations to prevent exacerbation of the contamination. The following Due Care measures will be taken to prevent exacerbation of the existing soil and groundwater contamination. Attachment B includes a Log of Due Care Management Activities that can be used to track future soil and groundwater disturbances.

4.1 Soil

If site maintenance, utility repairs, construction activities, or other subsurface work are expected to disturb soil on the Property, the following Due Care precautions will be taken to prevent exacerbation and limit the spread of contamination:

- If possible, excavated soil will be returned to the original excavation or to other areas of the Property.
- Excess excavated soil that cannot be relocated on-site will be characterized, transported to, and disposed in a licensed Type II landfill in accordance with applicable laws and regulations. If such excess soil is projected to be generated, the excavation contractor will have a plan for off-site disposal prior to commencing subsurface activities. See Attachment C for more specific instructions.
- Contractors will be instructed to employ construction methods that minimize excess soil generation.
- Soil that is excavated will be stockpiled in a single location on the Property; placed on plastic, pavement, or other barrier; and covered with plastic secured for wind.

Contractors and maintenance workers will be provided the following additional instruction prior to beginning any subsurface excavation activities:

- All subsurface operations shall cease, and the Site Supervisor and Property owner shall be notified, if unusual environmental conditions, such as stained soil, unusual odors, underground storage tanks, buried containers, etc., are encountered.
- Appropriate procedures shall be implemented to minimize/control track-out of contaminated soil during subsurface activities. Streets and sidewalks will be cleaned as needed to remove soil tracked out from the Property. Street sweepings will be managed in the same manner as excavated soil.

4.2 Groundwater

Groundwater on the Property ranges from approximately six feet to eighteen feet below ground surface. Groundwater likely will not be encountered during general site use; however, in the event that groundwater is encountered during subsurface excavation or construction activities and needs to be removed (e.g., dewatering for underground utility work), it will be properly characterized and managed according to all applicable regulations. Under no circumstances shall such groundwater be discharged to a storm sewer or sanitary sewer without obtaining a proper permit, or in a manner that results in flow off the Property. Groundwater associated with dewatering activities should either be:

1. Containerized on-site, characterized, and transported for proper disposal at an offsite licensed facility, or
2. Characterized pursuant to local sanitary sewer ordinances, approved and permitted by local waste water treatment facility for disposal in the sanitary sewer, and discharged to the sanitary sewer. Pretreatment may be required for this discharge.

If soil at the Property can absorb the dewatering groundwater at a rate sufficient to prevent run-off to the storm sewer, streets, or adjoining sites, the groundwater may be discharged into an excavation on the Property, as approved by SME and the owner.

5.0 REASONABLE PRECAUTIONS

The owner is responsible to take reasonable precautions against the reasonably foreseeable acts and omissions of a third party. The following precautions should be implemented at the Property to prevent the potential exposure of a third party to an unacceptable risk:

- Contractors shall provide documentation that soils being brought to the site for use as backfill material have been characterized and are environmentally clean.
- Contractors shall use appropriate secondary containment structures for all fuel containers and/or chemicals stored at the site during demolition/construction activities. Containers stored at the Property should also be properly secured to prevent damage or theft.
- Drinking water wells shall not be drilled or used at the Property.

6.0 RECORD KEEPING AND NOTIFICATIONS

A copy of this Due Care Plan will be maintained at the Property for reference and shall be provided to the Michigan Department of Environment Quality (MDEQ) on request.

The following general notices shall be given; no other record keeping notices are required:

- The Property owner shall provide a copy of this Due Care Plan to all subsurface workers who may come into contact with contaminated soil or groundwater, including contractors performing subsurface utility repair, installation, or removal.
- All contractors will be provided with information about the known and suspected presence and locations of hazardous substances on the Property and related hazards information as required under the OSHA Hazard Communication Standard (29CFR 1910.1200).
- All contractors shall promptly stop work and notify the Property owner and the Property owner's environmental consultant if unusual environmental conditions (e.g., staining, odors, abandoned containers, underground storage tanks, etc.) are encountered at the Property.

The Owner is also responsible for maintaining documentation such as soil and groundwater handling, disposal manifests, additional testing and characterization, completed response actions, and due care notices. The following information must be recorded for soil/fill or groundwater that is moved or disposed off site:

- The date(s) that impacted soil and/or groundwater was moved.
- The location(s) from which impacted soil and groundwater were moved.
- The location(s) to which impacted soil and/or groundwater were placed.
- The volume of impacted soil and groundwater moved.

Property Owner's Representative	Mr. Jon Bartlett	269-962-7526
Police Department, Fire Department, and Emergency Rescue	City of Battle Creek Police/Fire Department	911
Hospital	Battle Creek Health System 300 North Avenue Battle Creek, Michigan 49017	(269) 966-8000
Environmental Consultant	Mr. Davin K. Ojala, SME	(269) 323-3555

7.0 GENERAL COMMENTS

Due to historical operations, and the nature and variability of the subsurface profile at the Property, this plan may be added to or modified, as needed, depending upon conditions encountered during maintenance or redevelopment activities. Site conditions may be encountered which have not been addressed by this plan and those disturbing the subsurface shall at all times take steps to prevent exacerbation of existing contamination, and to mitigate exposure to impacted soil and groundwater.

8.0 ADDITIONAL RESOURCES

The following documents should be referred to for additional information pertaining to the Property.

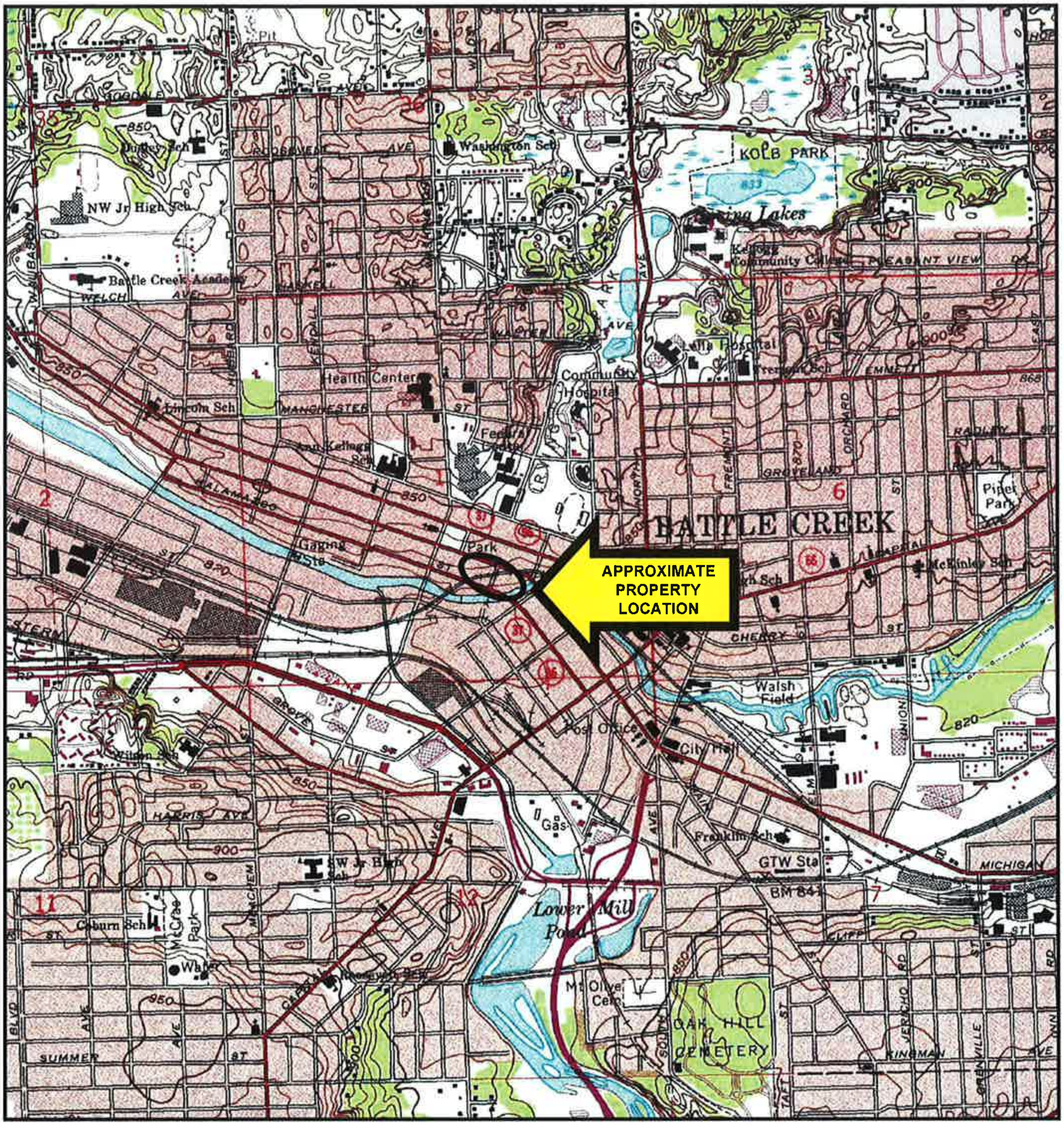
1. Soil and Materials Engineers, Inc, ***Phase I Environmental Site Assessment, 171 West Michigan Avenue, Battle Creek, Michigan,*** February 4, 2011.
2. Soil and Materials Engineers, ***Baseline Environmental Site Assessment Report, 171 West Michigan Avenue, Battle Creek, Michigan***, February 10, 2011.
3. Snell Environmental Group, **Soil Investigation, H. B Sherman Manufacturing Company,** December 1991.
4. Terra Environmental Corporation, **20-day Abatement Report, 103 East Michigan Avenue, Battle Creek, Michigan,** December 29, 1992.
5. Terra Environmental Corporation, **45-day Site Characterization Report, 103 East Michigan Avenue, Battle Creek, Michigan,** January 22, 1993.
6. Global Environmental Engineering and Terra Environmental Corporation, **Site Investigation Report, City of Battle Creek, H.B. Sherman Property,** May 28, 1993.
7. Global Environmental Engineering and Terra Environmental Corporation, **City of Battle Creek, Hebble Property, Site Investigation Report,** June 8, 1993.
8. Global Environmental Engineering and Terra Environmental Corporation, **Addendum to the May 28, 1993 Site Investigation Report, City of Battle Creek, H.B. Sherman Property,** August 30, 1993.
9. EarthTech, **A Risk Evaluation of Chemicals in Soils at the Hebble Site in Battle Creek, Michigan,** September 1994.
10. Horizon Environmental, **Investigative Results for the Former H.B. Sherman/Gallagher Laundry/Redbird Lounge Properties,** November 12, 1996.
11. Prein and Newhoff, **Phase II Results/Former H.B. Sherman Site, Battle Creek, Michigan,** February 11, 2002.
12. Horizon Environmental, **Baseline Environmental Assessment, Former Cereal City USA Property, 171 West Michigan Avenue, Battle Creek, Michigan,** June 2, 2009.

FIGURES

Figure 1: Property Location Diagram

Figure 2: Property Features Diagram

Figure 3: Soil Boring Location Diagram



Base map obtained from USGS.

0' 2000'

SCALE: 1" = 2000'

USGS QUADRANGLE(s) REFERENCED

BATTLE CREEK, MICHIGAN, 1985

NORTH

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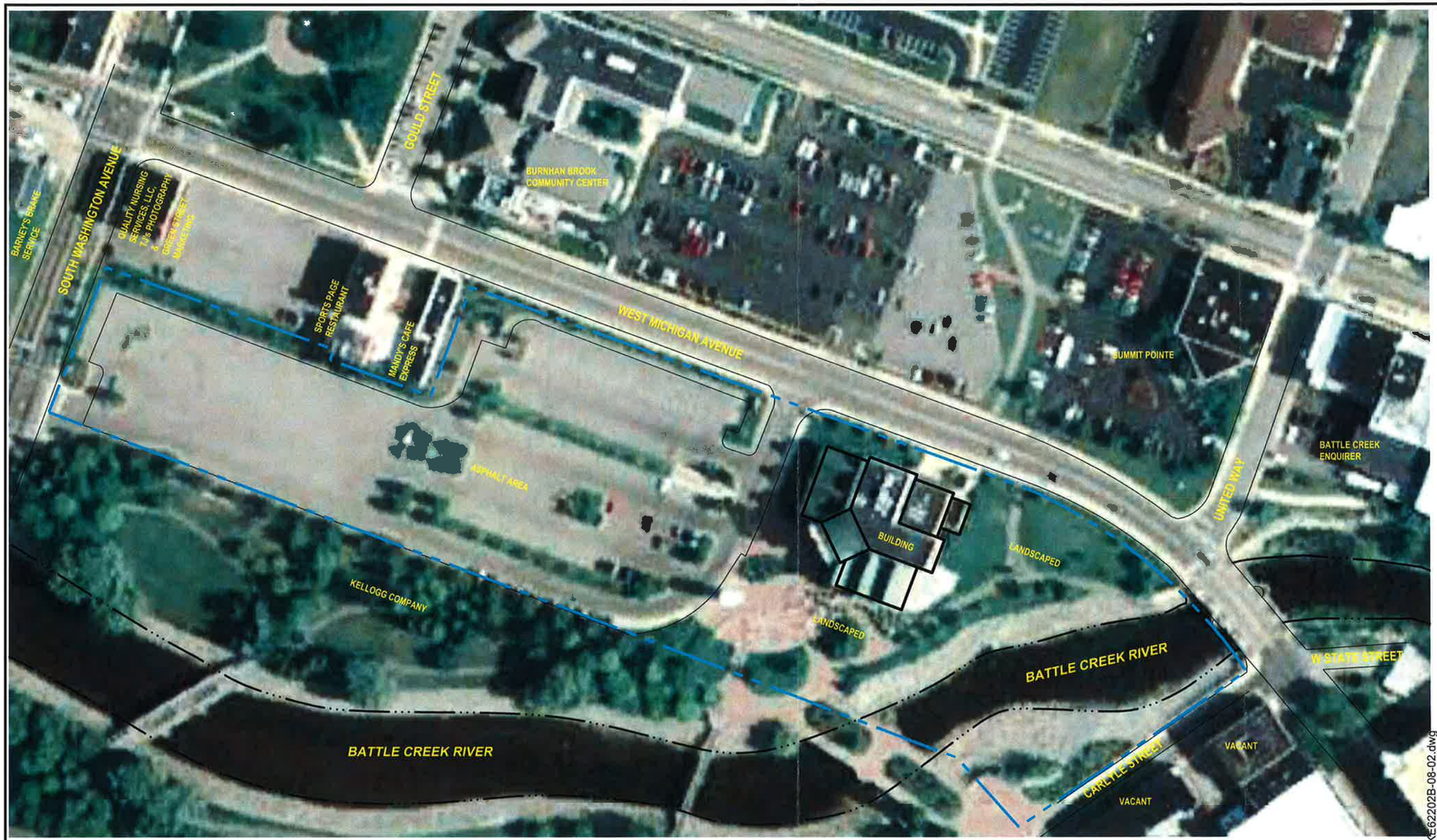
Indiana
Michigan
Ohio

Date	02-04-11
Drawn By	GM,SRG
Scale	1" = 2000'
Project	KE62202B-08

USGS 7.5 MINUTE TOPOGRAPHIC MAP
171 WEST MICHIGAN AVENUE
BATTLE CREEK, MICHIGAN

Figure No. 1



LEGEND

APPROXIMATE PROPERTY BOUNDARY

0 120 240

GRAPHIC SCALE: 1" = 120'

NORTH

NOTE:
1. DRAWING INFORMATION TAKEN FROM BATTLE CREEK UNLIMITED'S ON-LINE GEOGRAPHIC INFORMATION SYSTEM AND PROPERTY RECONNAISSANCE.
2. PROPERTY FEATURES ARE TO APPROXIMATE SCALE.
3. THE AERIAL PHOTOGRAPH WAS OBTAINED FROM GOOGLE EARTH.

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No.	Revision Date

PROPERTY FEATURES DIAGRAM

171 WEST MICHIGAN AVENUE

BATTLE CREEK, MICHIGAN

Date	02-04-11
Drawn By	GM,SRG
Designed By	NBB
Scale	1" = 120'
Project	KE62202B-08

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Ohio

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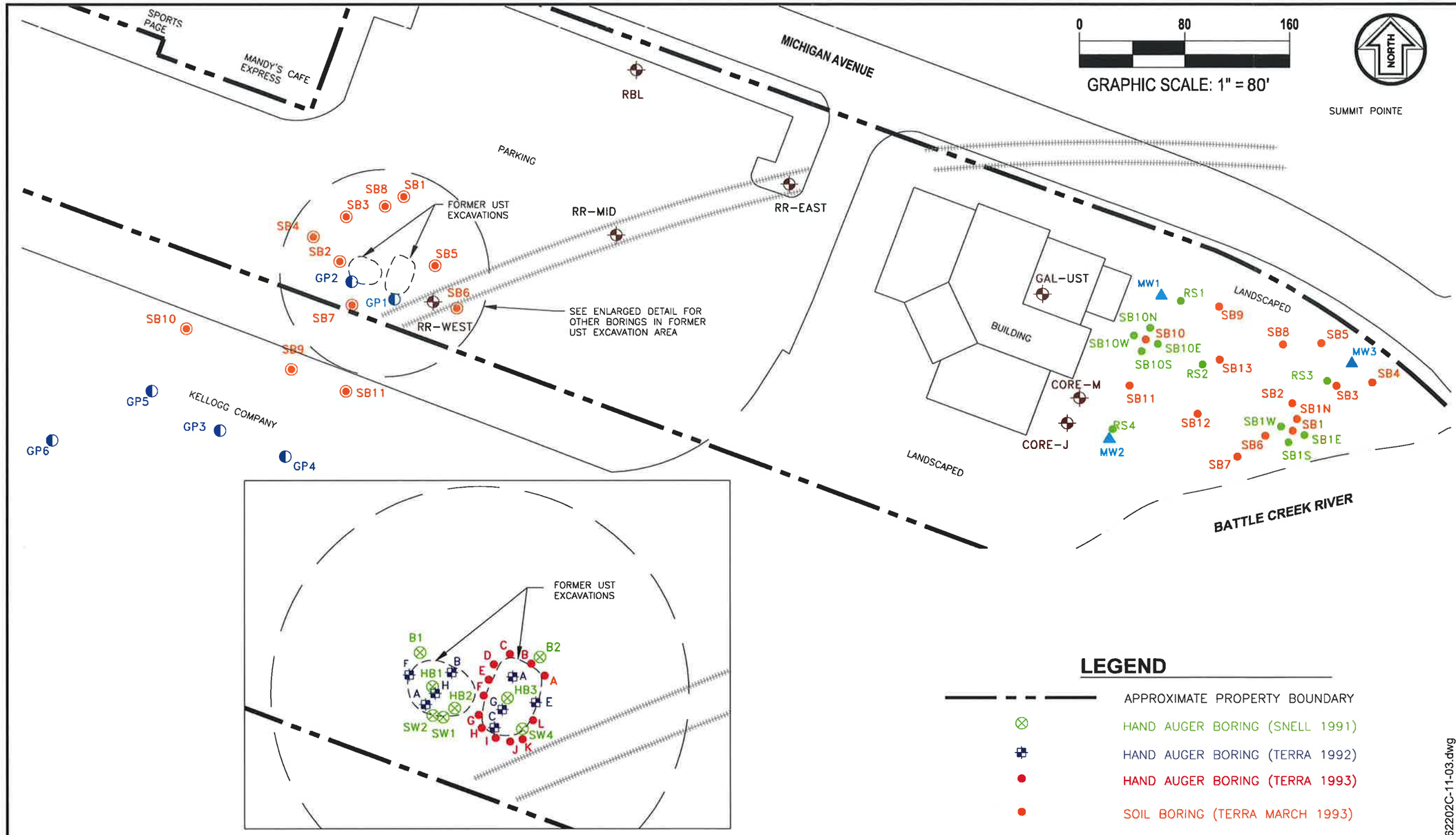
Figure No. 2



ENLARGED DETAIL

0 40 80

GRAPHIC SCALE: 1" = 40'

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- HAND AUGER BORING (SNELL 1991)
- HAND AUGER BORING (TERRA 1992)
- HAND AUGER BORING (TERRA 1993)
- SOIL BORING (TERRA MARCH 1993)
- SOIL BORING (TERRA APRIL/JULY 1993)
- SOIL BORING (EARTH TECH 1994)
- MONITORING WELL (EARTH TECH 1994)
- SOIL BORING (HORIZON 1996)
- SOIL BORING (PREIN & NEWHOFF 2001)

NOTE:
1. DRAWING INFORMATION TAKEN FROM AVAILABLE ASSESSING INFORMATION. BORING LOCATIONS BASED ON REPORTS PROVIDED BY HORIZON ENVIRONMENTAL.
2. PROPERTY FEATURES ARE TO APPROXIMATE SCALE.

HAND AUGER, SOIL BORING, AND MONITORING WELL LOCATION DIAGRAM
171 WEST MICHIGAN AVENUE
BATTLE CREEK, MICHIGAN

No.	Revision Date

Date	02-08-11
Drawn By	GM
Designed By	NBB
Scale	AS SHOWN
Project	KE 62202C-11

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Figure No. 3

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS - PART 201 EXCEEDANCES
COMPARED TO NON-RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

		Part 201 Generic Non-Residential Cleanup Criteria and Screening Levels			Sample ID Depth Below Grade (ft) Date Collected										
						Snell 1991		Terra 1992				Terra March 1993			
Constituent	CAS Number	Particulate Soil Inhalation Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	SW2 3 10/25/1991	HB1 5 10/25/1991	HB3 2.5' - 3' 11/11/1991	B 12/10/1992	E 12/10/1992	SB1 3' - 5' 3/29/1993	SB1 8' - 10' 3/29/1993	SB2 8' - 10' 3/30/1993	SB3 8' - 10' 3/30/1993	SB6 3' - 5' 3/31/1993
VOCs (ug/kg)															
Benzene	71-43-2	470,000,000	8,400	400,000	**29**	**32**	<RL	<RL	<RL	**15**	<RL	<RL	<RL	**76**
Chloroform	67-66-3	1,600,000,000	38,000	1,500,000	NR	NR	NR	NR	NR	<RL	<RL	<RL	<RL	**37**
1,2-Dichloroethane	107-06-2	150,000,000	11,000	420,000	NR	NR	NR	NR	NR	<RL	<RL	<RL	<RL	**11**
Ethylbenzene	100-41-4	13,000,000,000	140,000	140,000	**110**	**49**	**28**	**248**	<RL	**75**	<RL	<RL	<RL	**300**
Methyl-tert-butyl-ether	1634-04-4	88,000,000,000	5,900,000	5,900,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethylene	127-18-4	6,800,000,000	60,000	88,000	NR	NR	NR	NR	NR	**74**	<RL	<RL	<RL	<RL
Toluene	108-88-3	12,000,000,000	250,000	250,000	<RL	<RL	<RL	<RL	<RL	**330**	**31**	<RL	**13**	**1,400**
1,1,1-Trichloroethane	71-55-6	29,000,000,000	460,000	460,000	NR	NR	NR	NR	NR	**21**	**10**	<RL	<RL	**44**
1,2,4-Trimethylbenzene	95-63-6	36,000,000,000	110,000	110,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	108-67-8	36,000,000,000	94,000	94,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Xylenes (total)	1330-20-7	130,000,000,000	150,000	150,000	**153**	**40**	**132**	**735**	<RL	NR	NR	NR	NR	**2,170**
Other VOCs	CS	CS	CS	CS	NR	NR	NR	NR	NR	<RL	<RL	<RL	<RL	<RL
SVOCs (ug/kg)															
Acenaphthene	83-32-9	6,200,000,000	250,000,000	130,000,000	**7,400**	**4,100**	<RL	<RL	**11,000**	<RL	<RL	<RL	<RL	**190,000**
Acenaphthylene	208-96-8	1,000,000,000	3,000,000	5,200,000	<RL	ND	<RL	<RL	**7,500**	<RL	<RL	<RL	<RL	<RL
Anthracene	120-12-7	29,000,000,000	1,000,000,000	730,000,000	<RL	**8,200**	**7,800**	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(a)anthracene	56-55-3	ID	NLV	80,000	<RL	<RL	**5,400**	<RL	**4,600**	<RL	<RL	<RL	<RL	NR
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	**109,000**
Benzo(a)pyrene	50-32-8	1,900,000	NLV	8,000	**1,100**	<RL	<RL	<RL	**4,000**	<RL	<RL	<RL	<RL	NR
Benzo(a)pyrene & Dibenzo(a,h)anthracene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	**80,300**
Benzo(b)fluoranthene	205-99-2	ID	NLV	80,000	**2,200**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Benzo(b)fluoranthene & Benzo(k)fluoranthene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL
Benzo(g,h,i)perylene	191-24-2	350,000,000	NLV	7,000,000	**490**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(k)fluoranthene	207-08-9	ID	NLV	800,000	NR	NR	NR	<RL	<RL	NR	NR	NR	NR	NR
Chrysene	218-01-9	ID	ID	8,000,000	<RL	<RL	**5,900**	<RL	**4,600**	<RL	<RL	<RL	<RL	NR
Dibenzo(a,h)anthracene	53-70-3	ID	NLV	8,000	<RL	<RL	<RL	<RL	**4,000**	<RL	<RL	<RL	<RL	NR
Fluoranthene	206-44-0	4,100,000,000	1,000,000,000	130,000,000	**11,000**	**3,100**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Fluorene	86-73-7	4,100,000,000	1,000,000,000	87,000,000	**11,000**	**4,100**	<RL	<RL	**1,400**	<RL	<RL	<RL	<RL	**33,900**
Indeno(1,2,3-cd)pyrene	193-39-5	ID	NLV	80,000	<RL	<RL	<RL	<RL	**3,300**	<RL	<RL	<RL	<RL	**52,100**
2-Methylnaphthalene	91-57-6	ID	ID	26,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	91-20-3	88,000,000	470,000	52,000,000	**4,200**	**2,900**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	**69,800**
Phenanthrene	85-01-8	2,900,000	5,100,000	5,200,000	**19,000**	**7,100**	**6,700**	<RL	**2,900**	<RL	<RL	<RL	<RL	**69,500**
Pyrene	129-00-0	2,900,000,000	1,000,000,000	84,000,000	<RL	<RL	<RL	<RL	**6,200**	<RL	<RL	<RL	<RL	**164,000**
Metals (ug/kg)															
Arsenic	7440-38-2	910,000	NLV	37,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Barium	7440-39-3	150,000,000	NLV	130,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Cadmium	7440-43-9	2,200,000	NLV	2,100,000	NR	NR	NR	NR	NR	**16,200**	**395**	**57**	**135**	**2,140**
Chromium (total) ****	18540-29-9	150,000,000	NLV	1,000,000,000	NR	NR	NR	NR	NR	**28,300**	**28,900**	**30,500**	**37,600**	**17,200**
Copper	7440-50-8	59,000,000	NLV	73,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lead (total)	7439-92-1	44,000,000	NLV	900,000	NR	NR	NR	NR	NR	**1,112,000**	**201,000**	**2,380**	**5,920**	**171,000**
Mercury	Varies	8,800,000	89,000	580,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Selenium	7782-49-2	59,000,000	NLV	9,600,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Silver	7440-22-4	2,900,000	NLV	9,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Zinc	7440-66-6	ID	NLV	630,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

NOTES:
1. VOCs - Volatile Organic Compounds; SVOCs - Semi-volatile Organic Compounds
2. Concentrations reported in micrograms per kilogram (µg/kg).
3. Highlighted and bolded concentrations exceed applicable Part 201 non-residential cleanup criteria.
4. Criteria taken from MDEQ RRD Operational Memorandum #1, Table 3 Soil: Industrial and Commercial II, III, and IV Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were also compared to ambient air volatile soil inhalation criteria (infinite source), which are not listed in above table because the concentrations were below the applicable criteria.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. N/A - Criterion is not applicable because, per the RRD Operational Memorandum #2, the concentration of coelutes are not defined.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. **** - Total chromium results are compared to hexavalent chromium criteria.
12. + - Consituent is a coelute. Criteria for coelutes are not defined under MDEQ RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.

TABLE 1
SOIL ANALYTICAL RESULTS - PART 201 EXCEEDANCES
COMPARED TO NON-RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

		Part 201 Generic Residential Cleanup Criteria			Sample ID Depth Below Grade (ft) Date Collected									
										Terra March 1993				Terra April/July 1993
Constituent	CAS Number	Particulate Soil Inhalation Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	SB6 8' - 10' 3/31/1993	SB8 3' - 5' 3/31/1993	SB9 3' - 5' 3/31/1993	SB9 8' - 10' 3/31/1993	SB10 3' - 5' 3/31/1993	SB10 8' - 10' 3/31/1993	SB11 3' - 5' 3/31/1993	SB12 3' - 5' 3/31/1993	SB13 5' - 7' 3/31/1993	SB1 3' - 5' 4/6/1993
VOCs (µg/kg)														
Benzene	71-43-2	470,000,000	8,400	400,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	<RL
Chloroform	67-66-3	1,600,000,000	38,000	1,500,000	**18**	<RL	NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloroethane	107-06-2	150,000,000	11,000	420,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	100-41-4	13,000,000,000	140,000	140,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	<RL
Methyl-tert-butyl-ether	1634-04-4	88,000,000,000	5,900,000	5,900,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethylene	127-18-4	6,800,000,000	60,000	88,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	NR
Toluene	108-88-3	12,000,000,000	250,000	250,000	**42**	**27**	NR	NR	NR	NR	NR	NR	NR	<RL
1,1,1-Trichloroethane	71-55-6	29,000,000,000	460,000	460,000	**12**	**49**	NN	NR	NR	NR	NR	NR	NR	NR
1,2,4-Trimethlybenzene	95-63-6	36,000,000,000	110,000	110,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	108-67-8	36,000,000,000	94,000	94,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Xylenes (total)	1330-20-7	130,000,000,000	150,000	150,000	**32**	**83**	NR	NR	NR	NR	NR	NR	NR	<RL
Other VOCs	CS	CS	CS	CS	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	NR
SVOCs (µg/kg)														
Acenaphthene	83-32-9	6,200,000,000	250,000,000	130,000,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	<RL
Acenaphthylene	208-96-8	1,000,000,000	3,000,000	5,200,000	**4,200**	<RL	NR	NR	NR	NR	NR	NR	NR	<RL
Anthracene	120-12-7	29,000,000,000	1,000,000,000	730,000,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	676
Benzo(a)anthracene	56-55-3	ID	NLV	80,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	**2,000**	<RL	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)pyrene	50-32-8	1,900,000	NLV	8,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	**1,610**
Benzo(a)pyrene & Dibenzo(a,h)anthracene +	CS	N/A	N/A	N/A	**1,800**	<RL	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(b)fluoranthene	205-99-2	ID	NLV	80,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	**5,450**
Benzo(b)fluoranthene & Benzo(k)fluoranthene	CS	N/A	N/A	N/A	**4,700**	<RL	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(g,h,i)perylene	191-24-2	350,000,000	NLV	7,000,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	440
Benzo(k)fluoranthene	207-08-9	ID	NLV	800,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chrysene	218-01-9	ID	ID	8,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL
Dibenzo(a,h)anthracene	53-70-3	ID	NLV	8,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL
Fluoranthene	206-44-0	4,100,000,000	1,000,000,000	130,000,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	**806**
Fluorene	86-73-7	4,100,000,000	1,000,000,000	87,000,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	<RL
Indeno(1,2,3-cd)pyrene	193-39-5	ID	NLV	80,000	**380**	<RL	NR	NR	NR	NR	NR	NR	NR	**465**
2-Methylnaphthalene	91-57-6	ID	ID	26,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	91-20-3	88,000,000	470,000	52,000,000	**2,500**	<RL	NR	NR	NR	NR	NR	NR	NR	**359**
Phenanthrene	85-01-8	2,900,000	5,100,000	5,200,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	**1,500**
Pyrene	129-00-0	2,900,000,000	1,000,000,000	84,000,000	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	**704**
Metals (µg/kg)														
Arsenic	7440-38-2	910,000	NLV	37,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Barium	7440-39-3	150,000,000	NLV	130,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Cadmium	7440-43-9	2,200,000	NLV	2,100,000	**1,710**	**134**	**2,320**	**120**	**654**	**297**	**310**	**416**	**377**	NR
Chromium (total) ****	18540-29-9	150,000,000	NLV	1,000,000,000	**29,600**	**44,400**	**51,500**	**47,900**	**49,100**	**80,000**	**62,900**	**64,800**	**69,700**	NR
Copper	7440-50-8	59,000,000	NLV	73,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lead (total)	7439-92-1	44,000,000	NLV	900,000	**112,000**	**3,450**	**191,000**	**5,460**	**4,384,000**	**2,390**	**5,350**	**8,360**	**69,900**	NR
Mercury	Varies	8,800,000	89,000	580,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Selenium	7782-49-2	59,000,000	NLV	9,600,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Silver	7440-22-4	2,900,000	NLV	9,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Zinc	7440-66-6	ID	NLV	630,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

NOTES:
1. VOCs - Volatile Organic Compounds; SVOCs - Semi-volatile Organic Compounds
2. Concentrations reported in micrograms per kilogram (µg/kg).
3. Highlighted and bolded concentrations exceed applicable Part 201 non-residential cleanup criteria.
4. Criteria taken from MDEQ RRD Operational Memorandum #1, Table 3 Soil: Industrial and Commercial II, III, and IV Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were also compared to ambient air volatile soil inhalation criteria (infinite source), which are not listed in above table because the concentrations were below the applicable criteria.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. N/A - Criterion is not applicable because, per the RRD Operational Memorandum #2, the concentration of coelutes are not defined.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. **** - Total chromium results are compared to hexavalent chromium criteria.
12. + - Consituent is a coelute. Criteria for coelutes are not defined under MDEQ RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.

TABLE 1
SOIL ANALYTICAL RESULTS - PART 201 EXCEEDANCES
COMPARED TO NON-RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

Constituent	CAS Number	Part 201 Generic Residential Cleanup Criteria			Sample ID Depth Below Grade (ft) Date Collected								
					Terra April/July 1993					Terra August/September 1993			
		Particulate Soil Inhalation Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	SB2 18' - 20' 4/6/1993	SB5 18' - 20' 4/6/1993	SB7 8' - 10' 4/6/1993	SB7 13' - 15' 4/6/1993	SB7 18' - 20' 4/6/1993	A 8/4/1993	B 8/4/1993	C 8/4/1993	G 8/4/1993
VOCs (µg/kg)													
Benzene	71-43-2	470,000,000	8,400	400,000	<RL	<RL	<RL	<RL	<RL	NR	<RL	<RL	<RL
Chloroform	67-66-3	1,600,000,000	38,000	1,500,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloroethane	107-06-2	150,000,000	11,000	420,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	100-41-4	13,000,000,000	140,000	140,000	<RL	<RL	**380**	**290**	<RL	NR	<RL	<RL	<RL
Methyl-tert-butyl-ether	1634-04-4	88,000,000,000	5,900,000	5,900,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	127-18-4	6,800,000,000	60,000	88,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Toluene	108-88-3	12,000,000,000	250,000	250,000	**112**	**55**	**1,500**	**1,300**	**110**	NR	<RL	<RL	<RL
1,1,1-Trichloroethane	71-55-6	29,000,000,000	460,000	460,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2,4-Trimethlybenzene	95-63-6	36,000,000,000	110,000	110,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	108-67-8	36,000,000,000	94,000	94,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Xylenes (total)	1330-20-7	130,000,000,000	150,000	150,000	<RL	<RL	**1,800**	**1,410**	**16**	NR	<RL	<RL	<RL
Other VOCs	CS	CS	CS	CS	NR	NR	NR	NR	NR	NR	NR	NR	NR
SVOCs (µg/kg)													
Acenaphthene	83-32-9	6,200,000,000	250,000,000	130,000,000	4,200	980	<RL	9,300	**3,400**	<RL	<RL	<RL	<RL
Acenaphthylene	208-96-8	1,000,000,000	3,000,000	5,200,000	2,000	<RL	12,600	11,600	**1,400**	<RL	<RL	<RL	<RL
Anthracene	120-12-7	29,000,000,000	1,000,000,000	730,000,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(a)anthracene	56-55-3	ID	NLV	80,000	<RL	<RL	<RL	<RL	13,900	<RL	<RL	<RL	<RL
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)pyrene	50-32-8	1,900,000	NLV	8,000	14,100	4,300	126,000	59,700	18,200	51,000	<RL	<RL	<RL
Benzo(a)pyrene & Dibenzo(a,h)anthracene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(b)fluoranthene	205-99-2	ID	NLV	80,000	24,500	5,600	158,000	73,700	19,600	66,000	<RL	<RL	<RL
Benzo(b)fluoranthene & Benzo(k)fluoranthene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(g,h,i)perylene	191-24-2	350,000,000	NLV	7,000,000	<RL	<RL	<RL	<RL	<RL	52,000	<RL	<RL	<RL
Benzo(k)fluoranthene	207-08-9	ID	NLV	800,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chrysene	218-01-9	ID	ID	8,000,000	<RL	<RL	<RL	<RL	<RL	18,000	<RL	<RL	<RL
Dibenzo(a,h)anthracene	53-70-3	ID	NLV	8,000	<RL	<RL	<RL	<RL	<RL	8,300	<RL	<RL	<RL
Fluoranthene	206-44-0	4,100,000,000	1,000,000,000	130,000,000	<RL	<RL	<RL	<RL	<RL	11,000	<RL	<RL	<RL
Fluorene	86-73-7	4,100,000,000	1,000,000,000	87,000,000	790	440	8,500	7,000	850	6,700	<RL	<RL	<RL
Indeno(1,2,3-cd)pyrene	193-39-5	ID	NLV	80,000	<RL	<RL	1,100	<RL	<RL	15,000	<RL	<RL	<RL
2-Methylnaphthalene	91-57-6	ID	ID	26,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	91-20-3	88,000,000	470,000	52,000,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Phenanthrene	85-01-8	2,900,000	5,100,000	5,200,000	<RL	<RL	<RL	<RL	<RL	7,000	<RL	<RL	<RL
Pyrene	129-00-0	2,900,000,000	1,000,000,000	84,000,000	<RL	<RL	<RL	<RL	<RL	13,000	<RL	<RL	<RL
Metals (µg/kg)													
Arsenic	7440-38-2	910,000	NLV	37,000	NR	NR	NR	NR	NR	5,780	13,000	5,830	3,430
Barium	7440-39-3	150,000,000	NLV	130,000,000	NR	NR	NR	NR	NR	13,600	40,000	32,800	17,000
Cadmium	7440-43-9	2,200,000	NLV	2,100,000	NR	NR	NR	NR	NR	53	55	1,160	1,620
Chromium, Total ****	18540-29-9	150,000,000	NLV	1,000,000,000	NR	NR	NR	NR	NR	3,020	4,490	3,360	3,410
Copper	7440-50-8	59,000,000	NLV	73,000,000	NR	NR	NR	NR	NR	6,000	38,000	1,903,000	365,000
Lead (total)	7439-92-1	44,000,000	NLV	900,000	NR	NR	NR	NR	NR	2,430	18,600	36,000	36,900
Mercury	Varies	8,800,000	89,000	580,000	NR	NR	NR	NR	NR	120	110	138	154
Selenium	7782-49-2	59,000,000	NLV	9,600,000	NR	NR	NR	NR	NR	<RL	<RL	<RL	<RL
Silver	7440-22-4	2,900,000	NLV	9,000,000	NR	NR	NR	NR	NR	<RL	<RL	<RL	<RL
Zinc	7440-66-6	ID	NLV	630,000,000	NR	NR	NR	NR	NR	11,200	41,800	318,000	409,000

NOTES:

1. VOCs - Volatile Organic Compounds; SVOCs - Semi-volatile Organic Compounds
2. Concentrations reported in micrograms per kilogram (µg/kg).
3. Highlighted and bolded concentrations exceed applicable Part 201 non-residential cleanup criteria.
4. Criteria taken from MDEQ RRD Operational Memorandum #1, Table 3 Soil: Industrial and Commercial II, III, and IV Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were also compared to ambient air volatile soil inhalation criteria (infinite source), which are not listed in above table because the concentrations were below the applicable criteria.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. N/A - Criterion is not applicable because, per the RRD Operational Memorandum #2, the concentration of coelutes are not defined.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. **** - Total chromium results are compared to hexavalent chromium criteria.
12. + - Consituent is a coelute. Criteria for coelutes are not defined under MDEQ RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.

TABLE 1
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COMPARED TO NON-RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

Constituent	CAS Number	Part 201 Generic Residential and Commercial I Cleanup Criteria			Sample ID Depth Below Grade (ft) Date Collected								
					Terra August/September 1993						Earth Tech 1994		Horizon 1996
		Particulate Soil Inhalation Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	H 8/4/1993	I 8/4/1993	J 8/4/1993	K 8/4/1993	L 8/4/1993	C 9/29/1993	SB1E 1' - 1.5' 9/12/1994	SB1W 3' - 5' 9/12/1994	RR-East 10/14/96
VOCs (µg/kg)													
Benzene	71-43-2	470,000,000	8,400	400,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Chloroform	67-66-3	1,600,000,000	38,000	1,500,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloroethane	107-06-2	150,000,000	11,000	420,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	100-41-4	13,000,000,000	140,000	140,000	<RL	<RL	<RL	<RL	31	NR	NR	NR	<RL
Methyl-tert-butyl-ether	1634-04-4	88,000,000,000	5,900,000	5,900,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	127-18-4	6,800,000,000	60,000	88,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Toluene	108-88-3	12,000,000,000	250,000	250,000	<RL	<RL	<RL	<RL	26	NR	NR	NR	<RL
1,1,1-Trichloroethane	71-55-6	29,000,000,000	460,000	460,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2,4-Trimethylbenzene	95-63-6	36,000,000,000	110,000	110,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	108-67-8	36,000,000,000	94,000	94,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Xylenes (total)	1330-20-7	130,000,000,000	150,000	150,000	<RL	<RL	<RL	<RL	65	NR	NR	NR	<RL
Various VOCs	CS	CS	CS	CS	NR	NR	NR	NR	NR	NR	NR	NR	NR
SVOCs (µg/kg)													
Acenaphthene	83-32-9	6,200,000,000	250,000,000	130,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Acenaphthylene	208-96-8	1,000,000,000	3,000,000	5,200,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Anthracene	120-12-7	29,000,000,000	1,000,000,000	730,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	676
Benzo(a)anthracene	56-55-3	ID	NLV	80,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)pyrene	50-32-8	1,900,000	NLV	8,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	1,610
Benzo(a)pyrene & Dibenzo(a,h)anthracene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(b)fluoranthene	205-99-2	ID	NLV	80,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	5,450
Benzo(b)fluoranthene & Benzo(k)fluoranthene +	CS	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(g,h,i)perylene	191-24-2	350,000,000	NLV	7,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	440
Benzo(k)fluoranthene	207-08-9	ID	NLV	800,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chrysene	218-01-9	ID	ID	8,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Dibenzo(a,h)anthracene	53-70-3	ID	NLV	8,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Fluoranthene	206-44-0	4,100,000,000	1,000,000,000	130,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	806
Fluorene	86-73-7	4,100,000,000	1,000,000,000	87,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Indeno(1,2,3-cd)pyrene	193-39-5	ID	NLV	80,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	465
2-Methylnaphthalene	91-57-6	ID	ID	26,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	91-20-3	88,000,000	470,000	52,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	359
Phenanthrene	85-01-8	2,900,000	5,100,000	5,200,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	1,500
Pyrene	129-00-0	2,900,000,000	1,000,000,000	84,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	704
Metals (µg/kg)													
Arsenic	7440-38-2	910,000	NLV	37,000	11,800	27,700	5,200	10,300	26,300	NR	NR	NR	<RL
Barium	7440-39-3	150,000,000	NLV	130,000,000	26,700	67,700	11,100	26,600	41,400	NR	NR	NR	27,800
Cadmium	7440-43-9	2,200,000	NLV	2,100,000	30	1,110	<RL	125	<RL	NR	NR	NR	10,600
Chromium, Total ****	18540-29-9	150,000,000	NLV	1,000,000,000	18,500	62,400	39,600	8,840	14,200	NR	NR	NR	10,800
Copper	7440-50-8	59,000,000	NLV	73,000,000	6,540	7,070	5,950	7,020	9,800	654,000	NR	NR	115,000
Lead (total)	7439-92-1	44,000,000	NLV	900,000	5,460	10,600	400	5,250	5,310	1,410,000	440,000	4,770,000	47,500
Mercury	Varies	8,800,000	89,000	580,000	131	122	175	184	150	NR	NR	NR	<RL
Selenium	7782-49-2	59,000,000	NLV	9,600,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Silver	7440-22-4	2,900,000	NLV	9,000,000	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	<RL
Zinc	7440-66-6	ID	NLV	630,000,000	38,900	757,000	49,700	24,900	75,300	549,000	NR	NR	137,000

NOTES:

1. VOCs - Volatile Organic Compounds; SVOCs - Semi-volatile Organic Compounds
2. Concentrations reported in micrograms per kilogram (µg/kg).
3. Highlighted and bolded concentrations exceed applicable Part 201 non-residential cleanup criteria.
4. Criteria taken from MDEQ RRD Operational Memorandum #1, Table 3 Soil: Industrial and Commercial II, III, and IV Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were also compared to ambient air volatile soil inhalation criteria (infinite source), which are not listed in above table because the concentrations were below the applicable criteria.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. N/A - Criterion is not applicable because, per the RRD Operational Memorandum #2, the concentration of coelutes are not defined.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. **** - Total chromium results are compared to hexavalent chromium criteria.
12. + - Consituent is a coelute. Criteria for coelutes are not defined under MDEQ RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.

TABLE 2
GROUNDWATER ANALYTICAL RESULTS - PART 201 EXCEEDANCES
COMPARED TO NON-RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

Constituent	CAS Number	Part 201 Generic Residential and Commercial I Cleanup Criteria			Sample ID Screen Depth Below Grade (ft) Date Collected							
						Terra March 1993			Terra April/July 1993				Prein and Newhoff 2001
		Drinking Water Criteria	Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria	SB3 9'-14' 3/30/1993	SB5 19' - 24' 3/30/1993	SB6 19'-24' 3/31/1993	SB2 13' -18' 4/24/1993	SB5 13' - 18' 4/24/1993	SB7 13' -18' 4/24/1993	SB9 7/3/1993	GP-5 12' - 16' 4/10/2001
VOCs (µg/L)												
Benzene	71-43-2	**5.0**	35,000	11,000	<RL	**1**	<RL	<RL	<RL	**16**	<RL	<RL
Ethylbenzene	100-41-4	74	169,000^	169,000^	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Toluene	108-88-3	790	526,000^	526,000^	**2**	**18**	**4**	**6**	**2**	**4**	<RL	<RL
Trichloroethene	79-01-6	5.0	97,000	22,000	NR	NR	NR	NR	NR	NR	NR	NR
Other VOCs	CS	CS	CS	CS	NR	NR	NR	<RL	<RL	<RL	<RL	<RL
SVOCs (µg/L)												
Acenaphthene	83-32-9	3,800	4,240^	4,240^	NR	NR	NR	**432**	**43**	**967**	**7**	<RL
Acenaphthylene	208-96-8	**150**	3,930^	3,930^	NR	NR	NR	**226**	**25**	**475**	<RL	<RL
Anthracene	39-41-8	43.4	43.4^	43.4^	<RL	**13**	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(a)pyrene	50-32-8	**5.0**	NLV	**0.64**	<RL	<RL	<RL	**1,220**	<RL	**2,210**	<RL	<RL
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	<RL	**106**	<RL	NR	NR	**NR**	NR	NR
Benzo(b)fluoranthene	205-99-2	**1.5^**	ID	**1.5^**	NR	NR	NR	**1,810**	<RL	**3,520**	**632**	<RL
Chrysene	218-01-9	**1.6^**	ID	**1.6^**	NR	NR	NR	<RL	<RL	**<RL**	<RL	**47.5**
Fluoranthene	206-44-0	206^	206^	206^	**27**	<RL	<RL	<RL	<RL	**<RL**	<RL	**<RL**
Fluorene	86-73-7	1,980^	1,980^	1,980^	NR	NR	NR	**77**	**9**	**132**	**41**	<RL
Naphthalene	91-20-3	1,500	31,000	31,000	NR	NR	NR	<RL	<RL	**101**	<RL	<RL
Phenanthrene	85-01-8	150	1,000^	1,000^	NR	NR	NR	<RL	<RL	**<RL**	**115**	<RL
Pyrene	129-00-0	**135^**	**135^**	**135^**	**26**	**143**	<RL	<RL	<RL	**<RL**	<RL	**37.9**
Other SVOCs	CS	CS	CS	CS	NR	NR	NR	<RL	<RL	**<RL**	<RL	<RL
Metals (ug/L)												
Arsenic	7440-38-2	10	NLV	4,300	NR	NR	NR	NR	NR	NR	NR	NR
Barium	7440-39-3	2,000	NLV	14,000,000	NR	NR	NR	NR	NR	NR	NR	NR
Cadmium	7440-43-9	5.0	NLV	190,000	NR	NR	<RL	NR	NR	NR	NR	NR
Chromium, Total ***	16065-83-1	100	NLV	290,000,000	NR	NR	1	NR	NR	NR	NR	NR
Chromium, Hexavalent	18540-29-9	100	NLV	460,000	NR	NR	NR	NR	NR	NR	NR	NR
Copper	7440-50-8	1,000	NLV	7,400,000	NR	NR	NR	NR	NR	NR	NR	NR
Lead	7439-92-1	**4**	NLV	ID	NR	NR	**5**	NR	NR	NR	NR	NR
Mercury	Varies	2.0	56^	56^	NR	NR	NR	NR	NR	NR	NR	NR
Selenium	7782-49-2	50	NLV	970,000	NR	NR	NR	NR	NR	NR	NR	NR
Silver	7440-22-4	98	NLV	1,500,000	NR	NR	NR	NR	NR	NR	NR	NR
Zinc	7440-66-6	5,000	NLV	110,000,000	NR	NR	NR	NR	NR	NR	NR	NR

NOTES:
1. VOCs - Volatile Organic Compounds; SVOCs - Semi-volatile Organic Compounds.
2. Concentrations reported in micrograms per liter (µg/L).
3. Highlighted and bolded concentrations exceed applicable Part 201 non-residential cleanup criteria.
4. Criteria taken from MDEQ RRD Operational Memorandum #1, Table 1. Groundwater: Residential and Industrial-Commercial Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were compared to Part 201 Flammability and Explosivity Screening Levels and Acute Inhalation Screening Levels, which were not shown on this table because there were no exceedances.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. ID - Insufficient data to develop criterion.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. *** - Total Chromium value is compared to the Trivalent Chromium Criterion.
12. ^ - Criterion defualts to the hazardous substance-specific water solubility limit.
13. N/A - Criterion is not applicable because the concentration of coelutes are not defined.
14. + - Consituent is a coelute. Criteria for coelutes are not defined under MDEQ RRD Operational Memorandum #1, Table 1 Groundwater: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.

TABLE 3
SOIL ANALYTICAL RESULTS - PART 201 EXCEEDANCES
COMPARED TO RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

Constituent	CAS Number	Part 201 Generic Residential Cleanup Criteria				Sample ID / Depth Below Grade (ft) / Date Collected											
							Snell 1991		Terra 1992					Terra March 1993			
		Drinking Water Protection Criteria	Groundwater Surface Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	SW2 3 10/25/1991	HB1 5 10/25/1991	HB3 2.5' - 3' 11/11/1991	B 12/10/1992	E 12/10/1992	SB1 3' - 5' 3/29/1993	SB1 8' - 10' 3/29/1993	SB2 8' - 10' 3/30/1993	SB3 8' - 10' 3/30/1993	SB6 3' - 5' 3/31/1993	SB6 8' - 10' 3/31/1993	SB8 3' - 5' 3/31/1993
VOCs (µg/kg)																	
Benzene	71-43-2	100	240***	1,600	180,000	**29**	**32**	<RL	<RL	<RL	**15**	<RL	<RL	<RL	**76**	<RL	<RL
Chloroform	67-66-3	1,600	3,400	7,200	1,200,000	NR	NR	NR	NR	NR	<RL	<RL	<RL	<RL	**37**	**18**	<RL
1,2-Dichloroethane	107-06-2	100	7,200	2,100	91,000	NR	NR	NR	NR	NR	<RL	<RL	<RL	<RL	**11**	<RL	<RL
Ethylbenzene	100-41-4	1,500	360	87,000	140,000	**110**	**49**	**28**	**248**	<RL	**75**	<RL	<RL	<RL	**300**	<RL	<RL
Methyl-tert-butyl-ether	1634-04-4	800	15,000	5,900,000	1,500,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethylene	127-18-4	100	220***	11,000	88,000	NR	NR	NR	NR	NR	**74**	<RL	<RL	<RL	<RL	<RL	<RL
Toluene	108-88-3	16,000	2,800	250,000	250,000	<RL	<RL	<RL	<RL	<RL	**330**	**31**	<RL	**13**	**1,400**	**42**	**27**
1,1,1-Trichloroethane	71-55-6	4,000	4,000	250,000	460,000	NR	NR	NR	NR	NR	**21**	**10**	<RL	<RL	**44**	**12**	**49**
1,2,4-Trimethlybenzene	95-63-6	2,100	570	110,000	110,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Xylenes (total)	1330-20-7	5,600	**700**	150,000	150,000	**153**	**40**	**132**	**735**	<RL	NR	NR	NR	NR	**2,170**	**32**	**83**
Other VOCs	CS	CS	CS	CS	CS	NR	NR	NR	NR	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL
SVOCs (µg/kg)																	
Acenaphthene	83-32-9	300,000	**4,400**	190,000,000	41,000,000	**7,400**	**4,100**	<RL	<RL	**11,000**	<RL	<RL	<RL	<RL	**190,000**	<RL	<RL
Acenaphthylene	208-96-8	**5,900**	ID	1,600,000	1,600,000	<RL	ND	<RL	<RL	**7,500**	<RL	<RL	<RL	<RL	<RL	**4,200**	<RL
Anthracene	120-12-7	41,000	ID	1,000,000,000	230,000,000	<RL	**8,200**	**7,800**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(a)anthracene	56-55-3	NLL	NLL	NLV	20,000	<RL	<RL	**5,400**	<RL	**4,600**	<RL	<RL	<RL	<RL	NR	NR	NR
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	**109,000**	**2,000**	<RL
Benzo(a)pyrene	50-32-8	NLL	NLL	NLV	**2,000**	**1,100**	<RL	<RL	<RL	**4,000**	<RL	<RL	<RL	<RL	NR	NR	NR
Benzo(a)pyrene & Dibenzo(a,h)anthracene +	CS	N/A	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	**80,300**	**1,800**	<RL
Benzo(b)fluoranthene	205-99-2	NLL	NLL	ID	**20,000**	**2,200**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR	NR	NR
Benzo(b)fluoranthene & Benzo(k)fluoranthene	CS	N/A	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL	**4,700**	<RL
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLV	2,500,000	**490**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLV	200,000	NR	NR	NR	<RL	<RL	NR	NR	NR	NR	NR	NR	NR
Chrysene	218-01-9	NLL	NLL	ID	2,000,000	<RL	<RL	**5,900**	<RL	**4,600**	<RL	<RL	<RL	<RL	NR	NR	NR
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLV	**2,000**	<RL	<RL	<RL	<RL	**4,000**	<RL	<RL	<RL	<RL	NR	NR	NR
Fluoranthene	206-44-0	730,000	**5,500**	1,000,000,000	46,000,000	**11,000**	**3,100**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Fluorene	86-73-7	390,000	**5,300**	580,000,000	27,000,000	**11,000**	**4,100**	<RL	<RL	**1,400**	<RL	<RL	<RL	<RL	**33,900**	<RL	<RL
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLV	**20,000**	<RL	<RL	<RL	<RL	**3,300**	<RL	<RL	<RL	<RL	**52,100**	**380**	<RL
2-Methylnaphthalene	91-57-6	57,000	ID	ID	8,100,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	91-20-3	**35,000**	**870**	250,000	16,000,000	**4,200**	**2,900**	<RL	<RL	<RL	<RL	<RL	<RL	<RL	**69,800**	**2,500**	<RL
Phenanthrene	85-01-8	**56,000**	**5,300**	2,800,000	1,600,000	**19,000**	**7,100**	**6,700**	<RL	**2,900**	<RL	<RL	<RL	<RL	**69,500**	<RL	<RL
Pyrene	129-00-0	480,000	ID	1,000,000,000	29,000,000	<RL	<RL	<RL	<RL	**6,200**	<RL	<RL	<RL	<RL	**164,000**	<RL	<RL
Metals (µg/kg)																	
Arsenic	7440-38-2	5,800^	23,000 ***	NLV	7,600	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Barium	7440-39-3	1,300,000	440,000 **	NLV	37,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Cadmium	7440-43-9	**6,000**	**3,000 ** **	NLV	550,000	NR	NR	NR	NR	NR	**16,200**	**395**	**57**	**135**	**2,140**	**1,710**	**134**
Chromium (total) ****	18540-29-9	**30,000**	**18,000^**	NLV	2,500,000	NR	NR	NR	NR	NR	**28,300**	**28,900**	**30,500**	**37,600**	**17,200**	**29,600**	**44,400**
Copper	7440-50-8	5,800,000	**73,000 ** **	NLV	20,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lead (total)	7439-92-1	**700,000**	2,500,000 **	NLV	**400,000**	NR	NR	NR	NR	NR	**1,112,000**	**201,000**	**2,380**	**5,920**	**171,000**	**112,000**	**3,450**
Mercury	Varies	1,700	130^	48,000	160,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Selenium	7782-49-2	4,000	410^	NLV	2,600,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Silver	7440-22-4	4,500	1,000^	NLV	2,500,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Zinc	7440-66-6	2,400,000	170,000 **	NLV	170,000,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

NOTES:
1. VOCs - Volatile Organic Compounds; SVOCs - Semi-volatile Organic Compounds.
2. Concentrations reported in micrograms per kilogram (µg/kg).
3. Highlighted and bolded concentrations exceed applicable Part 201 residential cleanup criteria.
4. Criteria taken from MDNRE RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were also compared to ambient air volatile soil inhalation criteria (infinite source), which are not listed in above table because the concentrations were below the applicable criteria.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. N/A - Criterion is not applicable because, per the RRD Operational Memorandum #2, the concentration of coelutes are not defined.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. ^- Statewide Default Background Level used as criterion because it was greater than the listed Drinking Water Protection Criterion or the Groundwater Surface Water Interface Protection Criterion.
12. ** - Groundwater Surface Water Interface Criterion depends on the water hardness of the receiving water. In accordance with MDNRE Operational Memo No. 5, a water hardness of 150 mg CaCO3/L was used for the waters of the southern lower peninsula of Michigan. The criteria are protective for surface water that is used as a drinking water source.
13. *** - Criterion is protective of surface water that is used as a drinking water source.
14. **** - Total chromium results are compared to hexavalent chromium criteria.
15. + - Consituent is a coelute. Criteria for coelutes are not defined under MDNRE RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.
16. NLL - Hazardous substance is not likely to leach under most soil conditions.

TABLE 3
SOIL ANALYTICAL RESULTS - PART 201 EXCEEDANCES
COMPARED TO RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

		Part 201 Generic Residential Cleanup Criteria				Sample ID Depth Below Grade (ft) Date Collected										
						Terra April/July 1993	Terra August/September 1993									
Constituent	CAS Number	Drinking Water Protection Criteria	Groundwater Surface Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	SB7 18' - 20' 4/6/1993	A 8/4/1993	B 8/4/1993	C 8/4/1993	G 8/4/1993	H 8/4/1993	I 8/4/1993	J 8/4/1993	K 8/4/1993	L 8/4/1993	C 9/29/1993
VOCs (µg/kg)																
Benzene	71-43-2	100	240***	1,600	180,000	<RL	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Chloroform	67-66-3	1,600	3,400	7,200	1,200,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloroethane	107-06-2	100	7,200	2,100	91,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	100-41-4	1,500	360	87,000	140,000	<RL	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	31	NR
Methyl-tert-butyl-ether	1634-04-4	800	15,000	5,900,000	1,500,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	127-18-4	100	220***	11,000	88,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Toluene	108-88-3	16,000	2,800	250,000	250,000	110	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	26	NR
1,1,1-Trichloroethane	71-55-6	4,000	4,000	250,000	460,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2,4-Trimethlybenzene	95-63-6	2,100	570	110,000	110,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Xylenes (total)	1330-20-7	5,600	700	150,000	150,000	16	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	65	NR
Other VOCs	CS	CS	CS	CS	CS	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
SVOCs (µg/kg)																
Acenaphthene	83-32-9	300,000	4,400	190,000,000	41,000,000	3,400	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Acenaphthylene	208-96-8	5,900	ID	1,600,000	1,600,000	1,400	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Anthracene	120-12-7	41,000	ID	1,000,000,000	230,000,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Benzo(a)anthracene	56-55-3	NLL	NLL	NLV	20,000	13,900	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)pyrene	50-32-8	NLL	NLL	NLV	2,000	18,100	51,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Benzo(a)pyrene & Dibenzo(a,h)anthracene +	CS	N/A	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(b)fluoranthene	205-99-2	NLL	NLL	ID	20,000	19,600	66,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Benzo(b)fluoranthene & Benzo(k)fluoranthene	CS	N/A	N/A	N/A	N/A	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLV	2,500,000	<RL	52,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLV	200,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chrysene	218-01-9	NLL	NLL	ID	2,000,000	<RL	18,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLV	2,000	<RL	8,300	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Fluoranthene	206-44-0	730,000	5,500	1,000,000,000	46,000,000	<RL	11,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Fluorene	86-73-7	390,000	5,300	580,000,000	27,000,000	850	6,700	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLV	20,000	<RL	15,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
2-Methylnaphthalene	91-57-6	57,000	ID	ID	8,100,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	91-20-3	35,000	870	250,000	16,000,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Phenanthrene	85-01-8	56,000	5,300	2,800,000	1,600,000	<RL	7,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Pyrene	129-00-0	480,000	ID	1,000,000,000	29,000,000	<RL	13,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Metals (µg/kg)																
Arsenic	7440-38-2	5,800^	23,000 ***	NLV	7,600	NR	5,780	13,000	5,830	3,430	11,800	27,700	5,200	10,300	26,300	NR
Barium	7440-39-3	1,300,000	440,000 **	NLV	37,000,000	NR	13,600	40,000	32,800	17,000	26,700	67,700	11,100	26,600	41,400	NR
Cadmium	7440-43-9	6,000	3,000 **	NLV	550,000	NR	53	55	1,160	1,620	30	1,110	<RL	125	<RL	NR
Chromium, Total ****	18540-29-9	30,000	18,000^	NLV	2,500,000	NR	3,020	4,490	3,360	3,410	18,500	62,400	39,600	8,840	14,200	NR
Copper	7440-50-8	5,800,000	73,000 **	NLV	20,000,000	NR	6,000	38,000	1,903,000	365,000	6,540	7,070	5,950	7,020	9,800	654,000
Lead (total)	7439-92-1	700,000	2,500,000 **	NLV	400,000	NR	2,430	18,600	36,000	36,900	5,460	10,600	400	5,250	5,310	1,410,000
Mercury	Varies	1,700	130^	48,000	160,000	NR	120	110	138	154	131	122	175	184	150	NR
Selenium	7782-49-2	4,000	410^	NLV	2,600,000	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Silver	7440-22-4	4,500	1,000^	NLV	2,500,000	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR
Zinc	7440-66-6	2,400,000	170,000 **	NLV	170,000,000	NR	11,200	41,800	318,000	409,000	38,900	757,000	49,700	24,900	75,300	549,000

NOTES:
1. VOCs - Volatile Organic Compounds; SVOCs - Semi-volatile Organic Compounds.
2. Concentrations reported in micrograms per kilogram (µg/kg).
3. Highlighted and bolded concentrations exceed applicable Part 201 residential cleanup criteria.
4. Criteria taken from MDNRE RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were also compared to ambient air volatile soil inhalation criteria (infinite source), which are not listed in above table because the concentrations were below the applicable criteria.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. N/A - Criterion is not applicable because, per the RRD Operational Memorandum #2, the concentration of coelutes are not defined.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. ^- Statewide Default Background Level used as criterion because it was greater than the listed Drinking Water Protection Criterion or the Groundwater Surface Water Interface Protection Criterion.
12. ** - Groundwater Surface Water Interface Criterion depends on the water hardness of the receiving water. In accordance with MDNRE Operational Memo No. 5, a water hardness of 150 mg CaCO3/L was used for the waters of the southern lower peninsula of Michigan. The criteria are protective for surface water that is used as a drinking water source.
13. *** - Criterion is protective of surface water that is used as a drinking water source.
14. **** - Total chromium results are compared to hexavalent chromium criteria.
15. + - Consituent is a coelute. Criteria for coelutes are not defined under MDNRE RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.
16. NLL - Hazardous substance is not likely to leach under most soil conditions.

TABLE 3
SOIL ANALYTICAL RESULTS - PART 201 EXCEEDANCES
COMPARED TO RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

		Part 201 Generic Residential and Commercial I Cleanup Criteria				Sample ID Depth Below Grade (ft) Date Collected		
						Earth Tech 1994		Horizon 1996
Constituent	CAS Number	Drinking Water Protection Criteria	Groundwater Surface Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	SB1E 1' - 1.5' 9/12/1994	SB1W 3' - 5' 9/12/1994	RR-East 10/14/96
VOCs (µg/kg)								
Benzene	71-43-2	100	240***	1,600	180,000	NR	NR	<RL
Chloroform	67-66-3	1,600	3,400	7,200	1,200,000	NR	NR	NR
1,2-Dichloroethane	107-06-2	100	7,200	2,100	91,000	NR	NR	NR
Ethylbenzene	100-41-4	1,500	360	87,000	140,000	NR	NR	<RL
Methyl-tert-butyl-ether	1634-04-4	800	15,000	5,900,000	1,500,000	NR	NR	NR
Tetrachloroethene	127-18-4	100	220***	11,000	88,000	NR	NR	NR
Toluene	108-88-3	16,000	2,800	250,000	250,000	NR	NR	<RL
1,1,1-Trichloroethane	71-55-6	4,000	4,000	250,000	460,000	NR	NR	NR
1,2,4-Trimethlybenzene	95-63-6	2,100	570	110,000	110,000	NR	NR	NR
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	NR	NR	NR
Xylenes (total)	1330-20-7	5,600	700	150,000	150,000	NR	NR	<RL
Various VOCs	CS	CS	CS	CS	CS	NR	NR	NR
SVOCs (µg/kg)								
Acenaphthene	83-32-9	300,000	4,400	190,000,000	41,000,000	NR	NR	<RL
Acenaphthylene	208-96-8	5,900	ID	1,600,000	1,600,000	NR	NR	<RL
Anthracene	120-12-7	41,000	ID	1,000,000,000	230,000,000	NR	NR	676
Benzo(a)anthracene	56-55-3	NLL	NLL	NLV	20,000	NR	NR	<RL
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	N/A	NR	NR	NR
Benzo(a)pyrene	50-32-8	NLL	NLL	NLV	2,000	NR	NR	1,610
Benzo(a)pyrene & Dibenzo(a,h)anthracene +	CS	N/A	N/A	N/A	N/A	NR	NR	NR
Benzo(b)fluoranthene	205-99-2	NLL	NLL	ID	20,000	NR	NR	5,450
Benzo(b)fluoranthene & Benzo(k)fluoranthene +	CS	N/A	N/A	N/A	N/A	NR	NR	NR
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLV	2,500,000	NR	NR	440
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLV	200,000	NR	NR	NR
Chrysene	218-01-9	NLL	NLL	ID	2,000,000	NR	NR	<RL
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLV	2,000	NR	NR	<RL
Fluoranthene	206-44-0	730,000	5,500	1,000,000,000	46,000,000	NR	NR	806
Fluorene	86-73-7	390,000	5,300	580,000,000	27,000,000	NR	NR	<RL
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLV	20,000	NR	NR	465
2-Methylnaphthalene	91-57-6	57,000	ID	ID	8,100,000	NR	NR	NR
Naphthalene	91-20-3	35,000	870	250,000	16,000,000	NR	NR	359
Phenanthrene	85-01-8	56,000	5,300	2,800,000	1,600,000	NR	NR	1,500
Pyrene	129-00-0	480,000	ID	1,000,000,000	29,000,000	NR	NR	704
Metals (µg/kg)								
Arsenic	7440-38-2	5,800^	23,000 ***	NLV	7,600	NR	NR	<RL
Barium	7440-39-3	1,300,000	440,000 **	NLV	37,000,000	NR	NR	27,800
Cadmium	7440-43-9	6,000	3,000 **	NLV	550,000	NR	NR	10,600
Chromium, Total ****	18540-29-9	30,000	18,000^	NLV	2,500,000	NR	NR	10,800
Copper	7440-50-8	5,800,000	73,000 **	NLV	20,000,000	NR	NR	115,000
Lead (total)	7439-92-1	700,000	2,500,000 **	NLV	400,000	440,000	4,770,000	47,500
Mercury	Varies	1,700	130^	48,000	160,000	NR	NR	<RL
Selenium	7782-49-2	4,000	410^	NLV	2,600,000	NR	NR	<RL
Silver	7440-22-4	4,500	1,000^	NLV	2,500,000	NR	NR	<RL
Zinc	7440-66-6	2,400,000	170,000 **	NLV	170,000,000	NR	NR	137,000

NOTES:
1. VOCs - Volatile Organic Compounds; SVOCs - Semi-volatile Organic Compounds.
2. Concentrations reported in micrograms per kilogram (µg/kg).
3. Highlighted and bolded concentrations exceed applicable Part 201 residential cleanup criteria.
4. Criteria taken from MDNRE RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were also compared to ambient air volatile soil inhalation criteria (infinite source), which are not listed in above table because the concentrations were below the applicable criteria.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. N/A - Criterion is not applicable because, per the RRD Operational Memorandum #2, the concentration of coelutes are not defined.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. ^- Statewide Default Background Level used as criterion because it was greater than the listed Drinking Water Protection Criterion or the Groundwater Surface Water Interface Protection Criterion.
12. ** - Groundwater Surface Water Interface Criterion depends on the water hardness of the receiving water. In accordance with MDNRE Operational Memo No. 5, a water hardness of 150 mg CaCO3/L was used for the waters of the southern lower peninsula of Michigan. The criteria are protective for surface water that is used as a drinking water source.
13. *** - Criterion is protective of surface water that is used as a drinking water source.
14. **** - Total chromium results are compared to hexavalent chromium criteria.
15. + - Constituent is a coelute. Criteria for coelutes are not defined under MDNRE RRD Operational Memorandum #1, Table 2 Soil: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.
16. NLL - Hazardous substance is not likely to leach under most soil conditions.

TABLE 4
GROUNDWATER ANALYTICAL RESULTS - PART 201 EXCEEDANCES
COMPARED TO RESIDENTIAL CLEANUP CRITERIA
171 WEST MICHIGAN AVENUE, BATTLE CREEK, MICHIGAN
SME Project No. 062202.04.001

		Part 201 Generic Residential and Commercial I Cleanup Criteria				Sample ID Screen Depth Below Grade (ft) Date Collected							
							Terra March 1993			Terra April/July 1993			Prein and Newhoff 2001
Constituent	CAS Number	Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria	SB3 9'-14' 3/30/1993	SB5 19' - 24' 3/30/1993	SB6 19'-24' 3/31/1993	SB2 13' -18' 4/24/1993	SB5 13' - 18' 4/24/1993	SB7 13' -18' 4/24/1993	SB9 7/3/1993	GP-5 12' - 16' 4/10/2001
VOCs (µg/L)													
Benzene	71-43-2	**5.0**	200	5,600	11,000	<RL	**1**	<RL	**5**	<RL	**16**	<RL	<RL
Ethylbenzene	100-41-4	74	18	110,000	169,000	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Toluene	108-88-3	790	140	530,000	526,000	**2**	**18**	**4**	**6**	**2**	**4**	<RL	<RL
Trichloroethene	79-01-6	5.0	29 **	15,000	22,000	NR	NR	NR	NR	NR	NR	NR	NR
Other VOCs	CS	CS	CS	CS	CS	NR	NR	NR	<RL	<RL	<RL	<RL	<RL
SVOCs (µg/L)													
Acenaphthene	83-32-9	1,300	**19**	4,240^	4,240^	NR	NR	NR	**432**	**43**	**967**	**7**	<RL
Acenaphthylene	208-96-8	**52**	ID	3,930^	3,930^	NR	NR	NR	**226**	**25**	**475**	<RL	<RL
Anthracene	39-41-8	43.4^	ID	43.4^	43.4^	**<RL**	**13**	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(a)pyrene	50-32-8	**5.0**	ID	NLV	**0.64**	<RL	<RL	<RL	**1,220**	<RL	**2,210**	<RL	<RL
Benzo(a)anthracene & Chrysene +	CS	N/A	N/A	N/A	N/A	**<RL**	**106**	<RL	NR	NR	NR	NR	NR
Benzo(b)fluoranthene	205-99-2	**1.5^**	ID	ID	**1.5^**	NR	NR	NR	**1,810**	<RL	**3,520**	**632**	<RL
Chrysene	218-01-9	**1.6^**	ID	ID	**1.6^**	NR	NR	NR	<RL	<RL	<RL	<RL	**47.5**
Fluoranthene	206-44-0	**206^**	**1.6**	206^	206^	**27**	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Fluorene	86-73-7	880	**12**	1,980^	1,980^	NR	NR	NR	**77**	**9**	**132**	**41**	<RL
Naphthalene	91-20-3	520	**13**	31,000	31,000	**NR**	NR	NR	<RL	<RL	**101**	<RL	<RL
Phenanthrene	85-01-8	**52**	**2.4**	1,000^	1,000^	NR	NR	NR	<RL	<RL	<RL	**115**	<RL
Pyrene	129-00-0	**135^**	ID	**135^**	**135^**	**26**	**143**	<RL	<RL	<RL	<RL	<RL	**37.9**
Other SVOCs	CS	CS	CS	CS	CS	NR	NR	NR	<RL	<RL	<RL	<RL	<RL
Metals (µg/L)													
Arsenic	7440-38-2	10	50 **	NLV	4,300	NR	NR	NR	NR	NR	NR	NR	NR
Barium	7440-39-3	2,000	670*	NLV	14,000,000	NR	NR	NR	NR	NR	NR	NR	NR
Cadmium	7440-43-9	5.0	2.5 *	NLV	190,000	NR	NR	<RL	NR	NR	NR	NR	NR
Chromium, Total ***	16065-83-1	100	100*	NLV	290,000,000	NR	NR	**1**	NR	NR	NR	NR	NR
Chromium, Hexavalent	18540-29-9	100	11	NLV	460,000	NR	NR	NR	NR	NR	NR	NR	NR
Copper	7440-50-8	1,000	13 *	NLV	7,400,000	NR	NR	NR	NR	NR	NR	NR	NR
Lead	7439-92-1	**4**	14 *	NLV	ID	NR	NR	**5**	NR	NR	NR	NR	NR
Mercury	Varies	2.0	0.0013	56^	56^	NR	NR	NR	NR	NR	NR	NR	NR
Selenium	7782-49-2	50	5.0	NLV	970,000	NR	NR	NR	NR	NR	NR	NR	NR
Silver	7440-22-4	34	0.2	NLV	1,500,000	NR	NR	NR	NR	NR	NR	NR	NR
Zinc	7440-66-6	2,400	170 *	NLV	110,000,000	NR	NR	NR	NR	NR	NR	NR	NR

NOTES:
1. VOCs - Volatile Organic Compounds; PAHs - Polycyclic Aromatic Hydrocarbons.
2. Concentrations reported in micrograms per liter (µg/L).
3. Highlighted and bolded concentrations exceed applicable Part 201 residential cleanup criteria.
4. Criteria taken from MDNRE RRD Operational Memorandum #1, Table 1. Groundwater: Residential and Industrial-Commercial Part 201 Generic Cleanup Criteria and Screening levels, dated January 23, 2006.
5. Target analyte concentrations were compared to Part 201 Flammability and Explosivity Screening Levels and Acute Inhalation Screening Levels, which were not shown on this table because there were no exceedances.
6. CS - Criterion is specific to individual constituent.
7. <RL - Analytical result was less than the respective reporting limit.
8. NR - Analysis not requested.
9. ID - Insufficient data to develop criterion.
10. NLV - Hazardous substance is not likely to volatilize under most conditions.
11. * - Groundwater Surface Water Interface Criterion depends on the water hardness of the receiving water. In accordance with MDNRE Operational Memo No. 5, a water hardness of 150 mg CaCO3/L was used for the waters of the southern lower peninsula of Michigan. The criteria are protective for surface water that is used as a drinking water source.
12. ** - Criterion is protective of surface water that is used as a drinking water source.
13. *** - Total Chromium value is compared to the Trivalent Chromium Criterion.
14. ^ - Criterion defualts to the hazardous substance-specific water solubility limit.
15. N/A - Criterion is not applicable because the concentration of coelutes are not defined.
16. + - Consituent is a coelute. Criteria for coelutes are not defined under MDNRE RRD Operational Memorandum #1, Table 1 Groundwater: Residential and Commercial I Part 201 Generic Cleanup Criteria and Screening levels.

ATTACHMENT A

Log of Due Care Management Activities: Exacerbation Prevention

LOG OF DUE CARE MANAGEMENT ACTIVITIES - EXACERBATION PREVENTION
171 West Michigan Avenue
Battle Creek, Michigan

DATE	SUMMARY OF ACTIVITIES	SOIL MOVED ON-SITE OR DISPOSED OFF-SITE		LOG ENTRY BY	
		AMOUNT (CY/tons)	DISPOSITION (re-location area or landfill name)	NAME	INITIALS

ATTACHMENT B

MDEQ Part 201 Citizen's Guide Due Care Requirements

DUE CARE CITIZEN'S GUIDE

Due Care Requirements

For owners or operators of contaminated property

This handout describes the due care requirements for owners and operators of property that is contaminated.

Section 20107a of Part 201, Environmental Remediation, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), requires that owners and operators take due care measures to ensure that existing contamination on a property does not cause unacceptable risks and is not exacerbated. Such measures include evaluating the contamination and taking necessary response actions. Due care requirements are not related to the owner or operator's liability for the contaminants; they apply to non-liable parties and liable parties alike. The due care requirements were designed so contaminated properties could be safely redeveloped.

◄◄ NOTE ►►

This is a guidance document from the Michigan Department of Environmental Quality (DEQ). A thorough review of the statute, administrative rules, and guidelines should be completed before making site-specific decisions.

The Part 201 statute, Due Care Administrative Rules, and guidelines are available electronically at this DEQ Web site: www.michigan.gov/duecare.

DUE CARE REQUIREMENTS SECTION 20107a

An owner or operator of a facility shall do all of the following with respect to hazardous substances at a facility:

- Prevent exacerbation of the existing contamination.
- Prevent unacceptable human exposure and mitigate fire and explosion hazards to allow for the intended use of the facility in a manner that protects the public health and safety.
- Take reasonable precautions against the reasonably foreseeable acts or omissions of a third party
- Provide notifications to the DEQ and others.
- Provide reasonable cooperation, assistance, and access to the persons that are authorized to conduct response activities at the property.
- Comply with any land use or resource use restrictions established or relied on in connection with the response activities.
- Not impede the effectiveness or integrity of any land use or resource use restriction.

A facility is defined in Section 20101 of the NREPA as property with contamination concentrations above Michigan's cleanup criteria for residential property.

The requirements for due care are summarized on the next few pages and are specified in Part 201 Section 20107a and its Administrative Rules 1001-1021. Further information can be found on the DEQ Due Care web page (www.michigan.gov/duecare):

- Part 201 of NREPA
- Part 201 Administrative Rules (Due Care)
- Part 201 Residential Cleanup Criteria
- Part 201 and Due Care Citizen's Guides
- Due Care Brochure, Matrix and Forms

A fact sheet on Michigan's environmental cleanup program from...

Michigan Department of Environmental Quality
Remediation Division
PO Box 30426, Lansing, MI 48909-7926
517-373-9837
www.michigan.gov/deqrrd

Rick Snyder, Governor * Dan Wyant, Director

PREVENTING EXACERBATION

Exacerbation occurs when an activity undertaken by the person who owns or operates the property causes the existing contamination to migrate beyond the property boundaries. Examples of exacerbation can include: the mishandling of excavated contaminated soil such that contamination now migrates off-site; pumping contaminated water from footing drains into a nearby ditch; or creating a new migration pathway by putting a utility line through a zone of highly contaminated groundwater. An owner or operator can also exacerbate contamination by changing the facility conditions in a manner that would increase the response activity costs for the liable party. An example might be to place a building over the source of the existing contamination. A person that causes exacerbation would be liable for remediation of the contamination they caused or paying the increase in the response activity costs.

PREVENTING UNACCEPTABLE HUMAN RISK

Owners and operators must exercise due care by undertaking response activities that are necessary to prevent unacceptable exposures to contamination. The existing contamination must be evaluated to determine if the people using or working at the property would be exposed to contamination at levels above the appropriate criteria. Criteria for differing land uses can be found in the Part 201 Administrative Rules (Rules 744-752). For example, if groundwater used for drinking is contaminated above the drinking water criteria then the owner and operator must prevent the use of the contaminated drinking water. If soils are contaminated above the direct contact criteria for the appropriate land use at the surface of the property, then people must be prevented from coming into contact with those soils by restricting access, installing a protective barrier, or removing contaminated soil. Protective barriers can be clean soil, concrete, paving, etc. In some instances, remediation of the contamination may be the most cost effective due care measure. In addition, if there is a potential unacceptable risk for utility workers or people conducting activities in an easement, then utility and/or easement holders must be notified in writing of the conditions by the owner or operator. If there is a fire and explosion hazard, the local fire department must be notified and the situation must be mitigated.

TAKING REASONABLE PRECAUTIONS

Taking reasonable precautions against the reasonably foreseeable actions and omissions of a third party means trying to prevent things that could cause a third party to be exposed to an unacceptable risk. This might include: notifying contractors of contamination so they can take proper precautions; preventing trespass that would result in an unacceptable exposure (neighborhood kids playing in a vacant industrial yard that has direct contact hazards); and taking actions to secure abandoned containers so they don't get damaged by traffic, etc.

PROVIDE REASONABLE COOPERATION, ASSISTANCE, AND ACCESS

Owners and operators must allow a person authorized to take response activities on the property (such as the liable person, or the state) to take such actions as: installing monitor wells, operating a remediation system, and maintaining the integrity of a protective barrier, etc. However, the statute specifically states that this shall not be interpreted as providing

any right of access not expressly authorized by law. The authorized person must still go through the normal process of acquiring voluntary or court ordered access, including the potential for compensation as the parties and/or court deem reasonable.

COMPLY WITH AND NOT IMPEDE THE EFFECTIVENESS OF LAND USE AND RESOURCE USE RESTRICTIONS

If there are land use or resource use restrictions on the property, owners and operators must comply with those restrictions and not take actions that would impede their effectiveness. Examples of compliance might include: not installing a well if there is a restriction on using the groundwater for drinking water purposes, not allowing a residential use on a property if there is a restriction limiting the property use to industrial, not removing a protective barrier installed to prevent contact with contaminated soil, and not turning off an operating remediation system.

EVALUATING THE NEED FOR DUE CARE

The need for due care actions are determined by evaluating the property use and the existing contamination. Based on that evaluation, actions needed to prevent unacceptable exposures and comply with all due care obligations re-identified and implemented. The DEQ has a matrix available to aid in this evaluation. Environmental professionals often assist with this process (see Environmental Professionals section at end of document).

DUE CARE DOCUMENTATION

Owners and operators must maintain documentation that due care needs have been evaluated and any response actions that are needed have been taken. If applicable, maintenance and repair of the response action should also be documented. The documentation does not need to be submitted to the DEQ, but must be available for the DEQ to review upon request within eight (8) months of becoming the owner or operator or of having knowledge that the property is a facility. You may request the DEQ to review and approve: a due care investigation plan, an evaluation of exposure pathways, a plan for response activities, or a due care report documenting what response activities have been taken and your compliance with due care. Documentation requirements are described in the Part 201 Administrative Rule 1003.

NOTIFICATION

The due care rules require notification to the DEQ and others in the following circumstances:

- Notify the DEQ if there are discarded or abandoned containers that contain hazardous substances on the property; see Form EQP 4476.
- Notify the DEQ and adjacent property owners if contaminants are migrating off the property; see Form EQP 4482.
- Notify the local fire department if there is a fire or explosion hazard.
- Notify utility and easement holders if contaminants could cause unacceptable exposures and/or fire and explosion hazards.

These notices must be made within 45 days of becoming the owner or operator, or of having knowledge of the conditions. The forms are available at DEQ District Offices and the DEQ Web Page: www.michigan.gov/due care.

EXEMPTIONS/LIMITATIONS

Part 201 provides an exemption to the due care requirements to prevent exacerbation, prevent or mitigate unacceptable exposures, and take reasonable precautions for the following entities:

- An owner or operator of property where the

contamination is migrating onto the property.

- An owner or operator of a utility franchise on the property.
- An owner or operator of the severed mineral rights to the property.
- A local unit of government (LUG) that involuntarily acquires title or control of property by virtue of its governmental functions, or the property is transferred to the LUG from the state or a LUG that is not liable under Part 201, or by seizure, receivership or forfeiture or court order, or voluntarily acquired the property and conducted a Baseline Environmental Assessment.
- A LUG that has an easement interest or holds a utility franchise for a transportation or utility corridor or public right of way, or for conveying or providing goods and services.
- A LUG that is not liable and is leasing the property to a non-liable party.

However if the state or LUG exempted above offer access to the property and make it available for public use, such as for parks, schools, municipal office buildings, public works operations, etc., then the state or LUG must comply with all due care obligations for that portion of the property that is accessible.

Additionally, the person, state, or LUG that is exempted above still has due care obligations to provide cooperation, assistance, and access, comply with land use or resource use restrictions, and not impede the integrity or effectiveness of the land or resource use restriction. Further, Section 20107a(6) of Part 201 specifies utilities and severed mineral right owners must exercise due care in regard to their own activities.

While Part 201 provides these exemptions, it may be in the owner or operator's best interest to ensure the property is safe for the intended use and that they do not cause a new release by their actions or exacerbate pre-existing contamination.

ENVIRONMENTAL PROFESSIONALS

Obtaining an environmental professional, consultant or engineer, can be addressed in a manner of ways: via a web search or in the yellow pages of the telephone book under Environmental, Ecological, or Engineering; by asking your financial institution, real estate agency, or trade association for references; or by word of mouth, etc. It's wise to ask the professional or consultant for references and inquire as to past due care evaluations they have successfully completed. The DEQ cannot provide recommendations for environmental professionals, consultants or engineers.

SOURCES OF INFORMATION

DEQ Environmental Assistance Center
1-800-662-9278

DEQ Due Care Web Page
(with DEQ Office Locations)
www.michigan.gov/duecare

DEQ Remediation Division Web Page
www.michigan.gov/deqrrd

DEQ Remediation Division Contact
Part 201 (Environmental Remediation) and
Part 213 (Leaking Underground Storage Tanks)
Jeanne Schlaufman
586-753-3823
schlaufmanj1@michigan.gov

DEQ Office of Oil, Gas and Minerals Contact
Part 615 (Supervisor of Wells – oil/gas wells) and
Part 625 (Mineral Wells)
Janice Smith
517-241-1551
smithj6@michigan.gov

ATTACHMENT C

Soil Management Guidance

As of the date of this plan, MDEQ was attempting to determine the policy of managing the movement of impacted soils at a facility. Their current interpretation of different, contradictory soil management regulations (Part 201 and Part 115) indicates that any excess impacted soil (spoils) generated at a facility cannot be relocated or reused on the Property and must be properly disposed off-site. At the time the Property owner intends to generate excess soils at the Property, you should contact SME to discuss your excavation plans and current MDEQ soil management policies.

The soils on the Property contain lead at concentrations exceeding the "Rule of 20" in the area of soil sample locations SB1, SB6, SB9, and SB10 (Terra, March 1993), C (Terra, September 1993), and SB1E and SB1W (Earth Tech, September 1994). That is, the soil concentrations are 20 times higher than the allowable Toxicity Characteristics Leaching Procedure (TCLP) leachate concentrations indicating the soil may be hazardous by characteristic. The "Rule of 20" is only a screening tool and not a substitute for actual TCLP analysis. If the MDEQ policy requires excess soils to be disposed off-site, SME advises that the soils be tested for lead by the TCLP method. If the concentrations do not exceed the TCLP limits, the soil may disposed in a licensed Type II landfill in accordance with applicable laws and regulations. If such excess soil is projected to be generated, the excavation contractor will have a plan for off-site disposal prior to commencing subsurface activities. Please note, each landfill has their own waste characterization requirements and SME recommends contacting the landfill prior to any testing.